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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,633	06/08/2001	Preeti G. Lal	PC-0040 CIP	9282

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EXAMINER
SLOBODYANSKY, ELIZABETH

ART UNIT	PAPER NUMBER
1652	13

DATE MAILED: 03/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/877,633	LAL ET AL.	
	Examiner	Art Unit	
	Elizabeth Slobodyansky	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-39* is/are pending in the application.

4a) Of the above claim(s) *24,25 and 35-39* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

The amendment filed December 17, 2002 (Paper No. 10) canceling claims 1-12 and 21-23 and adding claims 24-39 has been entered.

The executed Declaration under 37 CFR 1.132 of Dr. Tod Bedilion filed on January 27, 2003 has been entered.

Claims 24-39 are pending.

Election/Restriction

Applicant's election with traverse of "Group I, which corresponds to newly added claims 26-34", in Paper No. 10 is acknowledged (page 6). The traversal is on the ground(s) that "there is minimal additional burden on the Examiner to examine newly added claims 35-39, which are drawn to methods of using the elected polynucleotides" (page 6). This is not found persuasive because claims 35-39 correspond to invention of Group III that was properly restricted from Group I as drawn processes of use for the reasons given in the Office action mailed September 12, 2002 (page 3).

The requirement is still deemed proper and is therefore made FINAL.

Claims 24, 25 and 35-39 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected Groups, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 10.

Claim Objections

Claims (26, 31) and 27 are objected to as dependent from non-elected claims 24 and 25, respectively. Despite this problem, in the interests of compact prosecution, claims (26, 31) and 27 were treated as if they were properly written, i.e. included all limitations of claims 24 and 25, respectively.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 26-34 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility.

Claims 26-34 are directed to or depend from a DNA encoding SEQ ID NO:1. Applicants disclose a human nucleic acid sequence of SEQ ID NO: 2 encoding the protein having the amino acid sequence of SEQ ID NO:1. The asserted utility for SEQ ID NO:2 is as diagnostic of cancers, particularly lymphoma and cancer of the bladder, colon, kidney, ovary, and testis (page 3, lines 4-5). The specification teaches that SEQ ID NO:1 has 55% identity to both high-glucose-regulated protein 8 and NY-REN-2 antigen (page 8, lines 32-33). There is no additional data to support any function for the

protein of SEQ ID NO:1. Neither high-glucose-regulated protein 8 nor NY-REN-2 antigen are used as diagnostic of cancer. The specification discloses the expression of SEQ ID NO:2 in various libraries, each library constructed from the tissue removed from a single individual. With regard to lymphoma (one library), expression was two-fold greater than in activated lymphocytes and six-fold greater than in untreated or non-activated T-cells (page 32). The specification teaches that "no expression was seen in activated in three other libraries made from activated T-cells (page 32, line 31). With regard to cancer of the colon, the specification teaches that in metastatic cancer (one library) the expression was higher than in contained tumor (one library) and two-fold greater than in normal tissue (page 32, line 33, through page 33, line 18). With regard to cancer of the bladder, the expression is higher in one library in transitional cell carcinoma of the bladder (BADTUT08) than in normal tissue (page 33). With regard to cancer of the kidney, the expression is higher in one library in Wilms' tumor, slightly higher in one library in renal cell carcinoma and less high in two other libraries in renal cell carcinoma compared with one library from normal cortex. With regard to the ovary, only in one metastatic endometrial cancer library and not in other cancerous and non-cancerous ovarian libraries the expression was greater (page 34). With regard to the testis, one library from testis tumor has higher expression than one library from embryonal carcinoma, the latter one higher than in normal tissue. Thus, it appears, that the specification presents data mostly obtained from one individual (one library) and

compares it to library/libraries from other individuals. Unless the data are statistically significant, it is impossible to know whether the expression is indeed diagnostic of any cancer. It is known in the art that the expression of a protein can vary from one individual to another. On the other hand, in the state of cancer, the expression of most proteins is aberrant. Therefore, the specification provides no guidance as to how to correlate the expression of SEQ ID NO:2 and the specific cancer. Said correlation is not established in the prior art.

While the expression of SEQ ID NO:2 is may be indicative of cancer, it may be due to other conditions as well. The expression of a gene can be affected by various conditions not necessarily associated with or occurring in any type of cancer. Overall, SEQ ID NO:2 appears to be expressed or not expressed in cancerous as well as non-cancerous tissues (*supra*, and page 34, lines 38-40, for example).

Thus, there is no showing in the specification that the expression of SEQ ID NO:2 is specifically occurring in lymphoma and cancer of the bladder, colon, kidney, ovary, and testis and not other diseases or in healthy condition. Alternatively, there is no showing that the expression of SEQ ID NO:2 parallels the expression of any gene used as a direct diagnostic tool for any type of cancer.

However, in order for a polynucleotide to be useful, as asserted, for diagnosis of a disease, there must be a well-established or disclosed correlation or relationship between the claimed polynucleotide and a disease or disorder. The presence of a

polynucleotide in tissue that is derived from cancer cells of one individual is not sufficient for establishing a utility in diagnosis of disease in the absence of some information regarding a correlative or causal relationship between the expression of the claimed cDNA and the disease. If a molecule is to be used as a surrogate for a disease state, some disease state must be identified in some way with the molecule in a statistically significant manner. There must be some expression pattern that would allow the claimed polynucleotide to be used in a diagnostic manner. Many proteins are expressed in normal tissues and diseased tissues. Therefore, one needs to know, e.g., that the claimed polynucleotide is either present only in cancer tissue to the exclusion of normal tissue or is expressed in higher levels in diseased tissue compared to normal tissue (i.e. overexpression). Evidence of a differential expression might serve as a basis for use of the claimed polynucleotide as a diagnostic for a disease. However, in the absence of any disclosed relationship between the claimed polynucleotide or the protein that is encoded thereby and any disease or disorder and the lack of any correlation between the claimed polynucleotide or the encoded protein with any known disease or disorder, any information obtained from an expression profile would only serve as the basis for further research on the observation itself.

Thus, obtaining of theoretically desired result of diagnosing lymphoma and cancer of the bladder, colon, kidney, ovary, and testis by measuring the expression of SEQ ID NO:2 is unpredictable based on the instant disclosure. A method for

diagnosing of lymphoma and cancer of the bladder, colon, kidney, ovary, and testis would require or constitute carrying out further research to identify or reasonably confirm that cancer can be diagnosed using a DNA encoding SEQ ID NO:1.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 26-34 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

The following rejections would apply even if the utility for a DNA encoding SEQ ID NO:1 would have been established.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly

connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 26, 29-31, 33 and 34 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 26(b) is drawn to a DNA encoding a naturally occurring amino acid sequence that is at least 90% identical to SEQ ID NO: 1, claims 29-31 depend from claim 26. Claim 32(b) is drawn to a naturally occurring DNA that is at least 90% identical to SEQ ID NO: 2.

The claimed genera include species which are widely variant in function. Naturally occurring amino acid sequences having at least 90% identity to SEQ ID NO:1 or a DNA that is 90% identical to SEQ ID NO:2 includes allelic variants of SEQ ID NO:1 and all other loci which encode proteins having 90% identity to SEQ ID NO:1. Allelic variants encompass polypeptides **whose function may or may not be altered** relative to the function of a polypeptide of SEQ ID NO:1. The claimed genera are functionally diverse as they encompass DNAs encoding polypeptides retaining the function of a polypeptide of SEQ ID NO:1, those which lack such function but are capable of inducing an antibody specific for SEQ ID NO: 1 as well as an enormous number of polypeptides with possibly other undisclosed functions.

There is no description in the specification of the mutational sites that exist in nature, and there is no description of how the structure of SEQ ID NO:2 relates to the structure of any naturally occurring alleles as well no disclosure of any function for naturally occurring variants. The general knowledge in the art concerning alleles dose not provide any indication of how one allele is representative of unknown alleles. The nature of alleles is such that they are variant structures, and in the present state of the art structure of one does not provide guidance to the structure of others.

As such, neither the description of the structure and function of SEQ ID NO:1 and a DNA encoding thereof of SEQ ID NO:2 nor the disclosure solely structural features present in all members of the genus is sufficient to be representative of the attributes and features of the entire genus.

Claim 34 (~~33~~) depends from claim 33 (~~32~~) and is further drawn to a DNA comprising at least 60 nucleotides of SEQ ID NO:2 or a naturally occurring DNA that is at least 90% identical to SEQ ID NO: 2.

These genera include DNAs encoding many structurally and functionally unrelated proteins and fragments thereof.

The specification does not contain any disclosure of the structure and function of all DNA sequences that comprise 60 nucleotides of SEQ ID NO:2 or a sequence that is 90% identical thereto. The genus of DNAs that comprise these above DNA molecules is a large variable genus with the potentiality of encoding many different proteins.

Therefore, many structurally and functionally unrelated DNAs are encompassed within the scope of these claims, including partial DNA sequences. The specification discloses only a single species of the claimed genus, SEQ ID NO:2. Moreover, the specification fails to describe any other representative species by any identifying characteristics or properties and fails to provide any structure: function correlation present in all members of the claimed genus. Therefore, the specification is insufficient to put one of skill in the art in possession of the attributes and features of all species within the claimed genus. Therefore, one skilled in the art cannot reasonably conclude that the applicant had possession of the claimed invention at the time the instant application was filed.

Claim ~~33~~ 34 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a DNA of SEQ ID NO:2, does not reasonably provide enablement for a DNA comprising at least 60 nucleotides of SEQ ID NO:2 or a sequence that is 90% identical thereto. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

Claim ~~33~~ 34 is drawn to a DNA comprising 60 nucleotides of SEQ ID NO:2 or a sequence that is 90% identical thereto.

Factors to be considered in determining whether undue experimentation is required, are summarized in In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir. 1988). They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7)considered in determining whether undue experimentation is required, are summarized the predictability or unpredictability of the art, and (8) the breadth of the claims.

The specification does not support the broad scope of the claims which encompass all modifications and fragments of any sequence that comprises a DNA comprising 60 nucleotides of SEQ ID NO:2 or a sequence that is 90% identical thereto because the specification does **not** establish: (A) regions of the protein structure which may be modified without effecting the specific requisite activity of the polypeptide of the instant invention; (B) the general tolerance of said polypeptide to modification and extent of such tolerance; (C) a rational and predictable scheme for modifying any amino acid residues with an expectation of obtaining the desired biological function; and (D) the specification provides insufficient guidance as to which of the essentially infinite possible choices is likely to be successful.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated

with the scope of the claims. The scope of the claims must bear a reasonable correlation with the scope of enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of polypeptide structure having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue.

Furthermore, the claims encompass DNAs encoding polypeptides retaining an activity of a polypeptide of SEQ ID NO:1 and an inactive variant thereof. The specification does not teach how to use said inactive variant. Therefore, the breadth of these claims is much larger than the scope enabled by the specification.

The state of the art does not allow the predictability of the properties based on the structure. The properties of a DNA comprising at least 60 nucleotides of unknown length and structure are unpredictable based on a fragment. Therefore, one skilled in the art would require guidance as to how to use a DNA comprising at least 60 nucleotides and encoding a polypeptide of unknown function in a manner reasonably correlated with the scope of the claims. Without such guidance, the experimentation left to those skilled in the art is undue.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 26, with dependent claims 29-32, is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 is indefinite because "biologically active fragment" does not define the function of said fragment. A fragment may exhibit various different activities such as catalytic, regulatory, immunogenic, etc. Fragments possessing any of these activities are not necessarily the same. Therefore, without pointing out the activity there is no way of knowing what are the metes and bounds of the claim.

Furthermore, claim 32 depends from canceled claim 9. For the purposes of the examination, the examiner construed claim 32 as dependent from claim 31 as it appears to be intended.

Response to Arguments

Applicant's arguments filed December 17, 2002 have been fully considered but they are not persuasive.

Applicants argue that utility of a gene encoding SEQ ID NO:1 is based on the fact that it "is expressed in human colon, bladder, kidney, ovary, and testis tissues and in tissues associated with the immune response an cancer (Specification, e.g., at page 9, lines 11-26, and in Example VIII, pages 32-35). In particular, similarities between SEQ ID NO:1 and NY-REN-2 tumor antigen (GI 5360085) are described in the

specification, for example, at page 8, lines 26-33 and in Figure 2. Therefore, the claimed invention has numerous practical, beneficial uses in toxicology testing, drug development, and the diagnosis of disease, none of which requires knowledge of how the polypeptide coded for by the polynucleotide actually functions (Remarks, page 7).

The examiner notes that the specification lacks any mentioning of toxicology testing. While toxicology testing may be known in the art at the time of filing, as an essential element, it should be described in the specification.

Applicants further refer to the Bedilion declaration for discussion of "the many reasons why a person skilled in the art reading the Lal '750 application on September 23, 1997 (the Lal '750 application is the priority application on which the patent application is based) would have understood that application to disclose the claimed polynucleotide to be useful in a number of gene expression monitoring applications, *e.g.*, as a highly specific probe for the expression of that specific polynucleotide in connection with the development of drugs and the monitoring of the activity of such drugs. (Bedilion Declaration at, *e.g.*, 10-15)" (page 10). They further argue with reference to the Bedilion Declaration that "a c DNA microarray that contained the SEQ ID NO:1-encoding polynucleotides would ve a highly useful tool ... (Bedilion Declaration, 15) (page 10, last paragraph).

The examiner does not argue the utility of cDNA microarrays in general. The importance of toxicology testing and the use of DNA arrays therefor is unquestionable.

What is not agreed with is the usefulness of a microarray comprising a DNA encoding SEQ ID NO:1 if the same microarray without it did not have utility.

Applicants argue that "Given the fact that the claimed polynucleotide is known to be expressed, its utility as a measuring and analyzing instrument for expression levels is as indisputable as a scale's utility for measuring weight" (page 11, lines 1-3, emphasis added). The examiner disagrees with that analogy because this analogy is fair with regard to scales and microarrays in general. In general, microarrays comprising useful polynucleotides are useful. However, it is not analogous to a microarray which utility is solely based on the nucleotide of the instant invention. In other words, the addition of a DNA encoding SEQ ID NO:1 to a microarray does not impart the utility if the microarray did not have one.

Applicants further compare their invention to research tools "MPEP § 2107 ("Many research tools such as gas chromotographs, screening assays, and nucleotide sequencing techniques have a clear, specific, and unquestionable utility (e.g., they are useful in analyzing compounds)" (emphasis added))" (page 12, 1st paragraph). Applicants do not explain how to analyze compounds using a polynucleotide encoding SEQ ID NO:1.

Furthermore, MPEP § 2107.01 states that "a claim to a polynucleotide whose use is disclosed simply as a "gene probe: or "chromosome marker" would not be considered to be *specific* in the absence of a disclosure of a specific DNA target. A

general statement of diagnostic utility such as diagnosing an unspecified disease, would ordinarily be insufficient absent a disclosure of what condition can be diagnosed" (emphasis added). For the reasons discussed above, the examiner considers said guidelines directly analogous to the instant invention.

Applicants further refer to the Bedilion Declaration for showing "that a number of pre-September 23, 1997 publications confirm and further establish the utility of cDNA microarrays in a wide range of drug development gene expression monitoring applications at the time the Lal '750 application was filed (Bedilion Declaration 10-14; Bedilion Exhibits A-G))" (page 12, last paragraph). The examiner does not argue the utility of cDNA microarrays in general and, specifically, the utility of the whole genome microarrays to which Applicants refer while discussing the Lashkari et al. article (paragraph bridging pages 13 and 14).

Applicants further argue usefulness of DNA arrays in toxicology (pages 14-15). The importance of toxicology testing and the use of DNA arrays therefor is unquestionable. What is not agreed with is the usefulness of a microarray comprising a DNA encoding SEQ ID NO:1 if the same microarray without it did not have utility. For the same reasons, examples of benefits presented on pages 15-16 are not persuasive because they attest to the usefulness of databases that do not comprise a gene of the instant invention but other DNAs that represent genes of interest such as the use of a known transporter gene (page 15, penultimate paragraph, and page 17).

Applicants further argue that "the similarity of the polypeptide encoded by the claimed invention to another polypeptide of undisputed utility demonstrates utility" (page 16 and in discussion on pages 15-19). Applicants refer to the utility of DNA encoding SEQ ID NO:1 based membership in a "general class" of tumor antigen class of proteins (page 19).

Applicants further characterize the examiner's position as follows: "The Examiner then goes on to assume that the only use for cancer marker protein, absent knowledge as to how the protein actually works, is further study of cancer marker protein itself" (page 20, 3rd paragraph). Contrary to this characterization, the examiner agrees that any cancer marker protein is useful notwithstanding the knowledge of the mechanism of its action and specific function. However, in the instant case, there is no showing that a polypeptide of SEQ ID NO:1 is a cancer marker protein. Applicants assign this utility to SEQ ID NO: 1 based on its 55% homology to the NY-REN-2 tumor antigen (pages 20-21). Furthermore, the Bedilion Declaration states that "SEQ ID NO: 1 has 55% identity to the sequence of the NY-REN-2 tumor antigen (GI 5360085). The NY-REN-2 tumor antigen is described in the Scanlan article (See Tab I). Because of the relationship between the cancer marker protein protein of SEQ ID NO:1 and known functional proteins, and because those known functional proteins are implicated in cancer, persons skilled in the art in September, 1997 would have considered SEQ ID NO:1-encoding polynucleotides to be an important and valuable addition to a cDNA

microarray for use in research into cancer " (Declaration, paragraph bridging pages 13-14). The examiner agrees that if a polypeptide of SEQ ID NO: 1 is a cancer marker protein, it is useful. However, in this case, it was not shown that a polypeptide of SEQ ID NO: 1 is a cancer marker protein. Moreover, Scanlan et al. do not disclose that NY-REN-2 is a specific marker for any cancer. In fact, they teach that NY-REN-2 is broadly expressed in normal tissues and reacts with sera from normal donors, indicating that its immunogenecity is not restricted to cancer (abstract; page 459, 1st column, 1st paragraph; page 460, Table III; page 462, Table IV).

Dr. Bedilion's Declaration attests to the usefulness of microarrays in toxicology testing. These issues were addressed above in response to Remarks. The examiner notes that the publications referred to in the declaration have been never mentioned in the specification or supplied with IDS. For example, Dr. Bedilion refers to the Heller et al. article to support the utility of any microarray comprising any expressed polynucleotide. However, this article teaches a specific design for microarrays. Heller et al. teach that "two approaches for the fabrication of c DNA microarrays were use in this study. In the first approach, known human genes of probable importance in RA were identified. ... In the second approach, the microarray containing the 1056 human genes from the peripheral blood lymphocyte library was prepared" (Heller et al., paragraph bridging pages 2150-2151, emphasis added). As mentioned above, in the instant case,

the importance of the claimed gene is unknown and one of ordinary skill in the art would not have known what particular cells to choose.

Dr. Bedilion repeatedly states that "microarray that contained the SEQ ID NO:1-encoding polynucleotides would be a more useful tool than cDNA microarrays that did not contain the polynucleotides in connection with conducting gene expression monitoring studies on proposed (or actual) drugs from treating cell proliferative disorders for such purposes as evaluating their efficacy and toxicity" (Declaration, paragraph bridging pages 11-12). For the reasons given above, this is not persuasive.

Therefore, the utility for a DNA encoding SEQ ID NO:1 is not established because the following is not shown: a) the specific function of a polypeptide of SEQ ID NO:1 (or a DNA encoding thereof) or b) its usefulness as a cancer marker protein.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Slobodyansky whose telephone number is (703) 306-3222. The examiner can normally be reached Monday through Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Ponnathapura Achutamurthy, can be reached at (703) 308-3804. The FAX phone number for Technology Center 1600 is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Center receptionist whose telephone number is (703) 308-0196.

E. Slobodyansky

Elizabeth Slobodyansky, PhD
Primary Examiner

March 12, 2003